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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,512	11/21/2003	Yong Kun Kim	3449-0287P	8407
2292	7590	08/09/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			KEANEY, ELIZABETH MARIE	
PO BOX 747			ART UNIT	
FALLS CHURCH, VA 22040-0747			PAPER NUMBER	

2882

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/717,512

Applicant(s)

KIM, YONG KUN

Examiner

Elizabeth Keane

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-25 is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-15, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 4-6, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Objections***

Claims 1-3 and 6 are objected to because of the following informalities:

- Claim 1, line 8: "same"; should be --the same--.
- Claim 2, line 2: "same"; should be --the same--.
- Claim 2, line 3: "a minor-axis"; should be --the minor-axis--.
- Claim 3, line 2: "same"; should be --the same--.
- Claim 6, line 4: "b/a"; should be --d/c--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical

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Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1,2,3,7 and 10-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Furusawa et al. (US Patent Application Publication 2002/0195920; hereinafter Furusawa).

Re claim 1: Furusawa discloses, in figure 1 and throughout the disclosure, a cathode ray tube comprising:

- a panel (1) having a fluorescent (4) formed on an inner surface thereof;
- a funnel (3) connected to the panel;
- an electron gun (9) housed in the funnel, emitting electron beams (91);
- a deflection yoke (10) for deflecting the electron beams in a horizontal and vertical directions;
- a shadow mask (5) for selecting colors of the electron beams; and
- a mask frame (6) for supporting the shadow mask
  - wherein an outer surface of the panel is substantially flat and an inner surface has a designated curvature (page 1, paragraph 22, lines 1-2); and
  - a radius of curvature from a center of the shadow mask in a major-axis ( $R_{ma}$ ), a minor axis ( $R_{mi}$ ) and a diagonal axis ( $R_d$ ) is substantially the same (Page 2, Table 2, line 1).

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Re claim 10: Furusawa discloses, in figure 1 and throughout the disclosure, a cathode ray tube comprising:

- a panel (1) having a fluorescent (4) formed on an inner surface thereof;
- a funnel (3) connected to the panel;
- an electron gun (9) housed in the funnel, emitting electron beams (91);
- a deflection yoke (10) for deflecting the electron beams in a horizontal and vertical directions;
- a shadow mask (5) for selecting colors of the electron beams; and
- a mask frame (6) for supporting the shadow mask
  - wherein an outer surface of the panel is substantially flat and an inner surface has a designated curvature (page 1, paragraph 22, lines 1-2); and
  - if a radius of curvature from a center of the shadow mask in a major-axis direction is  $R_{xo}$ , a radius of curvature in a minor-axis direction  $R_{yo}$ , and a radius of curvature in a diagonal-axis direction  $R_{do}$ , the  $R_{xo}$ ,  $R_{yo}$ , and  $R_{do}$  are not less than 85% of a maximum value among the  $R_{xo}$ ,  $R_{yo}$ , and  $R_{do}$  (Page 2, Table 2).

Re claim 2: Furusawa discloses the radii of curvature of the shadow mask are substantially the same within the length  $H/12$  from the center of the shadow mask,  $H$  being the minor-axis direction length of the shadow mask (Page 2, Table 2, lines 1-2).

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Re claim 3: Furusawa discloses the radii of curvature of the shadow mask are substantially the same as a distance from the center of the shadow mask is increased in the major-axis, minor-axis and diagonal-axis directions (Page 2, Table 2).

Re claims 7,11,13 and 15: Furusawa discloses if the radius of curvature from the center of the shadow mask in a major-axis direction is  $R_{xo}$ , the radius of curvature in the minor-axis direction  $R_{yo}$ , and the radius of curvature in a diagonal-axis direction  $R_{do}$ , the  $R_{yo}$  has the lowest value among the  $R_{xo}$ ,  $R_{yo}$ , and  $R_{do}$  (Table 2,  $R_{mi}$ ).

Re claim 12: Furusawa discloses the  $R_{xo}$ ,  $R_{yo}$ , and  $R_{do}$  are not less than 88% of a maximum value among the  $R_{xo}$ ,  $R_{yo}$ , and  $R_{do}$ .

Re claim 14: Furusawa discloses the  $R_{xo}$ ,  $R_{yo}$ , and  $R_{do}$  within the length  $H/12$  from the center of the shadow mask are not less than 85% of the maximum value among the  $R_{xo}$ ,  $R_{yo}$ , and  $R_{do}$ ,  $H$  being the minor-axis direction length of the shadow mask (Page 2, Table 2).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa as applied to claims 1 and 10 above, and further in view of Nishiki et al. (US Patent Application Publication 2001/0018309; hereinafter Nishiki).

Furusawa teaches all the limitations as shown above, including a shadow mask.

However, Furusawa fails to teach or fairly suggest the thickness of the shadow mask.

Nishiki discloses the use of a 0.1mm thick shadow mask within a CRT (page 5, paragraph 102, line 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the shadow mask of Furusawa to be 0.1mm thick because it would allow for the adequate manipulation for the desired radii of curvature while adding a negligible amount of weight to the CRT.

Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa as applied to claims 1 and 10 above, and further in view of Kawamura et al. (US Patent 6,448,706; hereinafter Kawamura).

Furusawa teaches all the limitations above.

However, Furusawa fails to teach or fairly suggest a transmittance at a central portion of the panel to be in the range of 45-75%.

Kawamura teaches that the transmittance at the central portion of a panel in a CRT is dependent upon the material selected for the panel (column 4, Table 3).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement a Tint or Dark Tint material for the panel of the Furusawa because it improves the contrast of the image without employing an additional step of coating during the manufacturing of the device (Kawamura; column 3, lines 59-63).

***Allowable Subject Matter***

Claims 4-6, 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 20-25 are allowable over the prior art of record.

The following is a statement of reasons for the indication of allowable subject matter:

Re claims 4-6: The best prior art of record discloses a CRT comprising many of the features of claims 4-6, including a shadow mask having a curvature radius defined by the polynomial of claims 4-6. However, the prior art fails to teach or fairly suggest a CRT having a polynomial defined in claims 4-6 wherein the constants of a, b, c and d are as required in claims 4-6.



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Re claims 16 and 17: The best prior art of record discloses a CRT comprising many of the features of claims 16 and 17, including a shadow mask having a curvature of radii. However, the prior art fails to teach or fairly suggest a CRT having a shadow mask wherein the radii curvature is defined as in claims 16 and 17.

Re claims 20-25: The best prior art of record discloses a CRT comprising many of the features of claim 20, including a shadow mask having a curvature of radii. However, the prior art fails to teach or fairly suggest a CRT having a shadow mask wherein the radii of curvature is defined by the equation in claim 20. Claims 21-25 are allowable by virtue of their dependency.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents disclose the current state in the art:

- US Patent 6,593,685
- US Patent 5,155,410
- US Patent 6,628,060
- US Patent 6,674,225
- US Patent 6,909,227
- US Patent 6,879,094


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Keaney whose telephone number is (571)272-2489. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571)272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER